



National Institute of
Environmental Health Sciences

Invited review: Contemporary environmental issues: A review of the dairy industry's role in climate change and air quality and the potential of mitigation through improved production efficiency

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Abstract:

Environmental concerns involving the dairy industry are shifting from an exclusive focus on water quality to encompass climate change and air quality issues. The dairy industry's climate change air emissions of concern are the greenhouse gases methane and nitrous oxide. With regard to air quality, the dairy industry's major emission contributions are particulate matter, volatile organic compounds, and ammonia. The emissions of these compounds from dairies can be variable because of a number of factors including weather conditions, animal type, management, and nutrition. To evaluate and compare emissions across the diverse operations that comprise the US dairy industry, emissions should be reported per unit of output (e.g., per kg of 3.5% fat-corrected milk). Accurately modeling emissions with models that can predict the complex bio-geochemical processes responsible for emissions is critical to assess current emissions inventories and develop mitigation strategies. Improving the dairy industry's production efficiency (e.g., improvements in management, nutrition, reproduction, and cow comfort) is an effective way to reduce emissions per unit of milk. With accurate process-based models, emissions reductions due to improved production efficiency could be reported per unit of milk and predicted on a farm-to-farm basis. © 2010 American Dairy Science Association.

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Resource Description

Communication:

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Other Communication Audience: Dairy farmers

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Food/Water Security, Unspecified Exposure

Air Pollution: Particulate Matter, Other Air Pollution

Climate Change and Human Health Literature Portal

Air Pollution (other): NO;VOC;ammonia

Food/Water Security: Livestock Productivity

Geographic Feature:

resource focuses on specific type of geography

Rural

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact:

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Mitigation

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Workers

Resource Type:

format or standard characteristic of resource

Review

Timescale:

time period studied

Time Scale Unspecified